

Type 2N5237
Geometry 3111
Polarity NPN
Qual Level: JAN - JANTXV

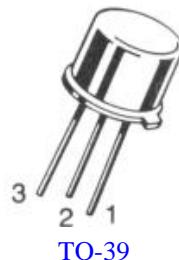
Generic Part Number:
2N5237

REF: MIL-PRF-19500/394

Features:

- Silicon power transistor for use in high speed switching applications.
- Housed in a [TO-39](#) case.
- Also available in chip form using the 3111 chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/394](#) which Semicoa meets in all cases.

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Maximum Ratings

$T_C = 25^\circ\text{C}$ unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	120	V
Collector-Base Voltage	V_{CBO}	150	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current, Continuous	I_C	10	A
Power Disipation $T_A = 25^\circ\text{C}$ ambient Derate above 25°C	P_T	1.0 5.7	mW mW°C
Power Disipation $T_A = 25^\circ\text{C}$ ambient Derate above 25°C	P_T	5.0 50	Watt mW°C
Thermal Impedance	R_{JC} R_{JA}	0.020 0.175	$^\circ\text{C}/\text{mW}$ $^\circ\text{C}/\text{mW}$
Operating Junction Temperature	T_J	-65 to +200	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 to +200	$^\circ\text{C}$

Electrical Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10 \mu\text{A}$	$V_{(\text{BR})\text{CBO}}$	150	---	V
Collector-Emitter Breakdown Voltage $I_C = 0.1 \text{ A, pulsed}$	$V_{(\text{BR})\text{CEO}}$	120	---	V
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$	$V_{(\text{BR})\text{EBO}}$	7.0	---	V
Collector-Emitter Cutoff Current $V_{CE} = 110 \text{ V}$ $V_{BE} = 0.5 \text{ V}, V_{CE} = 150 \text{ V}$ $V_{BE} = -0.5 \text{ V}, V_{CE} = 150 \text{ V}, T_C = +150^\circ\text{C}$	$I_{\text{CEO}1}$ I_{CEX} $I_{\text{CEX}2}$	---	10 10 100	μA μA μA
Base-Emitter Cutoff Current $V_{EB} = 5 \text{ V}$	I_{EBO}	---	0.1	μA
Collector-Base Cutoff Current $V_{CB} = 80 \text{ V}$	I_{CBO}	---	0.1	μA

ON Characteristics	Symbol	Min	Max	Unit
Forward Current Transfer Ratio $I_C = 1 \text{ A}, V_{CE} = 5 \text{ V, pulsed}$ $I_C = 5 \text{ A}, V_{CE} = 5 \text{ V, pulsed}$ $I_C = 10 \text{ A}, V_{CE} = 5 \text{ V}$ $I_C = 5 \text{ A}, V_{CE} = 5 \text{ V}, T_C = -55^\circ\text{C}$	h_{FE1} h_{FE2} h_{FE3} h_{FE4}	50 40 10 20	225 120 --- ---	--- --- --- ---
Base-Emitter Saturation Voltage $I_C = 5 \text{ A}, I_B = 0.5 \text{ A, pulsed}$ $I_C = 10 \text{ A}, I_B = 1 \text{ A, pulsed}$	$V_{BE(\text{sat})1}$ $V_{BE(\text{sat})2}$	---	1.5 2.5	V dc V dc
Collector-Emitter Saturation Voltage $I_C = 5 \text{ A}, I_B = 0.5 \text{ A, pulsed}$ $I_C = 10 \text{ A}, I_B = 1 \text{ A, pulsed}$	$V_{CE(\text{sat})1}$ $V_{CE(\text{sat})2}$	---	0.6 2.5	V dc V dc
Safe Operating Area, Continuous DC $T_C = 25^\circ\text{C}, t = 1.0 \text{ s}$		$V_{CE} = 40 \text{ V}, I_C = 0.22 \text{ A}$ $V_{CE} = 70 \text{ V}, I_C = 90 \text{ mA}$		

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter Small Signal Short Circuit Forward Current Transfer Ratio $V_{CE} = 10 \text{ V}, I_C = 0.2 \text{ A, f} = 10 \text{ MHz}$	$ h_{fe} $	1.5	7.5	---
Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA, f} = 1 \text{ kHz}$	h_{fe}	40	160	---
Open Circuit Output Capacitance $V_{CB} = 10 \text{ V}, I_E = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	C_{OBO}	---	350	pF

Switching Time	Symbol	Min	Max	Unit
Delay Time Per figure 4, MIL-PRF-19500/394C	t_d	---	50	ns
Rise Time Per figure 4, MIL-PRF-19500/394C	t_r	---	500	ns
Storage Time Per figure 4, MIL-PRF-19500/394C	t_s	---	1.5	ns
Fall Time Per figure 4, MIL-PRF-19500/394C	t_f	---	50	ns